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IS 11427 (2001): Fish and Fisheries Products - Sampling
[FAD 12: Fish and Fisheries Products]



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भारतीय मानक
मछली और मछली उत्पाद — नमूना
(पहला पुनरीक्षण)

Indian Standard
FISH AND FISHERY PRODUCTS — SAMPLING
(*First Revision*)

ICS 67.120.30

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BUREAU OF INDIAN STANDARDS
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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Fish and Fisheries Products Sectional Committee had been approved by the Food and Agriculture Division Council.

India has a large export trade in fish and fisheries products. There is ample scope for further increase of export as well as internal trade of fish and fisheries products if proper quality control measures are taken.

This standard, first published in 1985 is intended to introduce uniform methods of sampling to be adopted by various agencies for fish and fisheries products. This revision has been undertaken to update the sampling requirements to help in exercising proper quality control of fish and fisheries products.

For the purpose of sampling, fish and fishery products have been broadly classified into following groups:

- a) Canned fish,
- b) Fresh fish,
- c) Frozen fish,
- d) Dry-salted and dried fish, and
- e) Fish oils.

For each of these groups, a suitable sampling plan has been recommended.

This standard is applicable only to fish and fishery products belonging to the above five categories packed in containers.

Indian Standard

FISH AND FISHERY PRODUCTS — SAMPLING

(*First Revision*)

1 SCOPE

This standard prescribes the scale of sampling and criteria for conformity for fish and fishery products packed in containers to decide the conformity or otherwise of various consignments offered

2 REFERENCE

The following Indian Standard listed contains provisions which through reference in this text, constitutes provision of this standard. At the time of publication, the edition indicated was valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below:

<i>IS No.</i>	<i>Title</i>
4905 : 1968	Methods for random sampling

3 REQUIREMENTS OF SAMPLING

3.0 In drawing, preparing, storing and handling test samples, the following precautions and directions shall be observed.

3.1 Sampling shall be done in the presence of vendor and vendee or their authorized representatives.

3.2 Samples shall be taken in a protected and clean place.

3.3 The samples, the material being sampled, the sampling instrument(s) and containers for samples shall be protected from adventitious contamination.

3.4 The sampling instrument(s) shall be of suitable size, capacity and clean and dry. Only sterilized sampling instruments shall be used for taking the samples to be tested for microbiological requirements.

3.5 All sampling instruments shall preferably be made of glass or stainless steel.

3.6 Samples shall be placed in clean and dry glass/stainless steel containers. These containers, wherever applicable, shall also be sterilized whenever samples are drawn for testing microbiological requirements.

3.7 The sample containers shall be of such size that they are almost filled by the sample.

3.8 Samples in containers shall be stored and transported in such a manner that there is no deterioration of the material. For frozen fish, temperature of storage transportation shall be -20°C . If samples are not immediately analysed, these shall be stored and transported without any direct contact with ice. In the case of canned produce the sample cans shall be stored and transported to the laboratory without any appreciable difference in the temperature.

3.9 Samples shall be sent to the laboratory for testing as early as possible.

3.10 Each sample container, after filling shall be sealed air-tight with a stopper or a suitable closure in such a way that it cannot be opened and resealed without detection. It shall be marked with full details of sampling, such as date and place of sampling, name of the vendor and other important particulars of the consignment.

4 SAPLING OF CANNED FISH

4.1 Deficiencies

4.1.1 Rusting — Peeling of outside lacquer on the can body seams visible to naked eye.

4.1.2 Dent — Change out the content through the seam of damaged container.

4.1.3 Flipper — A can that normally appears flat, but when brought down sharply on its end on a flat surface, one end flips out. When pressure is applied to this end, it flips in again and can appear flat.

4.1.4 Springer — A can with one end permanently bulged. When sufficient pressure is applied to this end, it will flip in, but the other end will flip out.

4.1.5 Bulging — A can bulged at one end or both ends, which by pressure is not flipped.

4.2 Lot

Cans of the same type of pack containing material of the same variety, same grade and packed at the same place on the same day shall constitute a lot.

4.3 Scale of Sampling

4.3.1 For ascertaining the conformity of material to the requirements of the relevant standard, samples

shall be tested from each lot separately.

4.3.2 The number of cartons/cans to be selected from a lot shall depend on the size of the lot and shall be according to Table 1.

Table 1 Scale of Sampling
(Clauses 4.3.2 and 4.4.1)

Number of Cartons in the Lot (1)	Sample Size (2)
Up to 24	5
25 to 50	8
51 to 100	10
101 to 250	12
251 to 500	14
501 to 1 000	18
1 001 and above	24

4.3.3 If sampling is done before packing the number of cartons shall be computed as 24 cans to a carton up to 150 g pack and 12 cans to a pack if the type of pack is more than 150 g and sampling scale at 4.3.2 shall be applied. In order to ensure the randomness of selections, procedure given in IS 4905 shall be followed.

4.4 Number of Tests and Criteria for Conformity

4.4.1 Each of the cans selected according to Table 1 shall be examined, before opening, for visual requirements, such as rustiness, leakage, denting, springering, bulging, flippering and proper stenciling. A can failing to satisfy one or more of these requirements shall be considered as defective, and the lot shall not be analyzed for other parameters.

4.4.2 The lot having been found satisfactory according to 4.4.1 shall be further tested for microbiological parameters. In case the standard requires that the cans have to be tested for microbiological parameters after incubation at more than one temperature (for example 37°C and 55°C), the number of cans at 4.3.2 shall be suitably increased so that a minimum of 5 cans are available at each temperature separately.

4.4.2.1 The lot shall be declared as conforming to specification if each group of cans meets the relevant specification requirement.

4.4.3 The can contents after removal of inoculum under aseptic condition shall be tested for physical and chemical requirements as per specification.

4.4.4 The lot shall be considered to have met physical and chemical requirements if there is no failure as per specifications.

4.4.5 The lot shall be further tested for metallic impurities given in the relevant material specification. A composite sample shall be prepared by thoroughly mixing approximately equal quantity of material taken from each selected can and shall be tested for these requirements.

4.4.5.1 The lot shall be considered to have met the requirements for metallic impurities if all the test results on the composite sample meet the relevant specification requirements.

5 SAMPLING OF FRESH FISH

5.1 Scale of Sampling

5.1.1 Lot

All the containers of the material of the same variety, same size grade and packed on the same day and at the same unit shall constitute a lot.

5.1.2 For ascertaining the conformity of the material to the requirements of the relevant specification, samples shall be according to Table 2.

Table 2 Selection of Containers for Fresh Fish
(Clauses 5.1.2 and 5.1.4)

Number of Containers in the Lot (1)	Sample Size (2)
Up to 8	2
9 to 25	3
26 to 50	5
51 to 100	7
101 to 150	8
151 to 300	9
301 and above	10

5.1.3 These containers shall be selected at random from the lot. In order to ensure the randomness of selection, procedures given in IS 4905 may be followed.

5.1.4 In order to select at random the required number of fishes, from each of the containers, Table 2 may be applied. In this case, col 1 may be taken to represent the number of cartons, and col 2 the number of fishes to be selected from each carton. The selection of fishes shall be done at random and in order to ensure the randomness of selection, procedures given in IS 4905 may be followed.

5.1.5 In addition to the fishes selected from each selected carton (see 5.1.3), one fish shall be selected at random from the carton for testing microbiological requirements. In order to ensure the randomness of selection, procedure given in IS 4905 may be followed.

5.1.5.1 Representative portions from the tail, middle and upper middle portion of the fishes so selected at **5.1.5** shall be aseptically cut and transferred into sterile containers for testing for microbiological parameters. Five such composite sample shall be made from each lot.

5.2 Number of Tests

5.2.1 Each of the fishes selected according to **5.1.4** shall be tested for all the requirements of the standard except the microbiological requirements.

5.2.2 The 5 composite samples selected according to **5.1.5.1** shall be tested separately for microbiological requirements.

5.3 Criteria for Conformity

5.3.1 The lot shall be declared as conforming to the requirements of the standard if **5.3.1.1** and **5.3.1.2** are satisfied.

5.3.1.1 All the fishes tested according to **5.2.1** shall satisfy the corresponding requirements given in the relevant standard.

5.3.1.2 Each of the fishes tested for microbiological requirements according to **5.2.2** shall satisfy the relevant specification requirement.

6 SAMPLING OF FROZEN FISH

6.1 Scale of Sampling

6.1.1 Lot

All the blocked packages cartons of the same type of pack containing the material of same variety (species) and packed on the same day and at the same unit shall constitute a lot.

6.1.2 For ascertaining the conformity of the material to the requirements of the relevant specification, samples shall be tested from each lot separately.

6.1.3 The number of blocks/packages/cartons to be selected from a lot shall depend on the size of the lot and shall be according to col 1 and 2 of Table 3.

6.1.3.1 In case, more than 10 blocks/packages are packed in cartons, the sampling scale at Table 3 shall be applied to select the number of blocks/packages.

6.1.4 The cartons and blocks/packages from the cartons shall be selected at random. In order to ensure the randomness of selection, procedures given in IS 4905 may be followed.

6.1.5 From the blocks/packages selected, 5 composite samples shall be drawn aseptically in sterile containers

Table 3 Selection of Blocks/Packages/Cartons and Permissible Number of Defectives

(Clauses 6.1.3 and 6.1.3.1)

Number of Cartons in the Lot	Sample Size
(1)	(2)
Up to 20	2
21 to 50	3
51 to 100	5
101 to 350	8
301 to 500	13
501 and above	16

from each lot for testing for microbiological requirement.

6.2 Number of Tests

6.2.1 Each of the blocks/packages selected according to **6.1.3** shall be tested for all the requirements of the standard except the microbiological requirements.

6.2.2 The 5 composite samples selected according to **6.1.5** shall be tested separately for microbiological requirements.

6.3 Criteria for Conformity

6.3.1 The lot shall be declared as conforming to the requirements of the specification if the results of test as per **6.2.1** meet the relevant specified requirements.

6.3.1.1 The block tested for microbiological requirements according to **6.2.2** satisfy the relevant specified requirement.

7 SAMPLING OF DRIED AND DRY-SALTED FISH

7.1 Scale of Sampling

7.1.1 Lot

All the bundles/bags/packages in a single consignment, of the same size, grade and material of same variety and packed on the same day, in a single unit shall constitute a lot.

7.1.2 For ascertaining the conformity of the material to the requirements of the relevant specification, samples shall be tested from each lot separately.

7.1.3 The number of bundles/bags/packages to be selected from a lot shall depend on the size of the lot and shall be according to Table 4.

7.1.3.1 These bundles/bags/packages shall be selected at random from the lot. In order to ensure the

randomness of selection, procedures given in IS 4905 may be followed.

Table 4 Number of Bundles/Packages to be Selected for Dried and Dry-Salted Fish

(Clause 7.1.3)

Number of Bundles/Bags/ Packages in the Lot	Sample Size
(1)	(2)
Up to 8	2
9 to 25	3
26 to 50	4
51 to 100	5
101 to 150	6
151 and above	7

7.2 Number of Tests and Criteria for Conformity

7.2.1 Pick up with an appropriate sampling instrument, required number of fishes at random from different parts of each bundle/bag/package selected according to 7.1.3 so as to get about 750 g of material from each bundle. It shall be examined visually for variety, moisture and other physical characteristics given in the relevant Indian Standard.

7.2.1.1 In the case of bigger fishes weighing more than 250 g per fish, a minimum 5 fishes shall be selected. In the case of fishes of small varieties about 5 kg of the material shall be selected, and by cornering and quartering assuring thorough mixing, about 750 g of the material selected.

7.2.1.2 The lot shall be considered to have satisfied these requirements if the material in each selected bundle/bag/package so examined is found to meet the corresponding requirements given in the relevant Indian Standard.

7.2.2 The lot having been found satisfactory according to 7.2.1 shall be further tested for chemical requirements, such as sodium chloride content and acid insoluble ash on the basis of a composite sample. For this purpose, each of the fishes found satisfactory according to 7.2.1 shall be cut into small pieces. These pieces may be cut from approximately 10 mm to 20 mm broad strips cut from across each of the fishes. The positions at which the strips are to be cut should correspond to approximate centres of three equal sections across the length of the fish. These pieces may also be cut from different parts of each fish, such as tails region, head region, mid region, dorsal region and ventral region.

The pieces thus obtained shall be thoroughly mixed so as to obtain at least 250 g of material. This shall constitute the composite sample. The composite sample thus obtained shall be transferred to a thoroughly clean and dry sample container and sealed air tight. The sample container shall be labelled with the details given in 3.10.

7.2.2.1 Representative composite sample shall be cut using sterile knives and transfer in aseptic conditions into a sterile container for microbiological analysis.

7.2.3 The lot shall be declared as conforming to the requirements of the specification if all the results on the composite sample are found to meet the corresponding requirements given in the relevant material specification in samples drawn at 7.2.2 and 7.2.2.1.

8 SAMPLING OF FISH OILS

8.1 Scale of Sampling

8.1.1 Lot

All the containers, in a single consignment, of the same size, containing the material of same type and belonging to the same batch of manufacture shall constitute a lot. If a consignment is declared to consist of different batches of manufacture, the batches shall be marked separately and the groups of containers in each batch shall constitute separate lots.

8.1.2 For ascertaining the conformity of the material to the requirements of the relevant material specification, samples shall be tested from each lot separately.

8.1.3 The number of containers to be selected from the lot shall depend on the size of the lot and shall be according to Table 5.

Table 5 Scale of Sampling for Fish Oils

(Clauses 8.1.3 and 8.2.1)

Number of Containers in the Lot	Sample Size
(1)	(2)
Up to 25	5
26 to 50	8
51 to 100	13
101 and above	20

8.1.3.1 These containers shall be selected at random. In order to ensure the randomness of selection, procedures given in IS 4905 may be followed.

8.2 Preparation of Test Samples

8.2.1 Before drawing the test samples, mix thoroughly the contents of each selected container, whether it is a drum, bottle, can or other container, by shaking or stirring or any other suitable means. Draw small portions of the material from each container selected (*see* Table 5) by inserting the suitable sampling instrument through the bung hole or other opening. The total quantity of material drawn from each container shall be sufficient to conduct the tests for all the characteristics given in the standard.

8.2.2 Mix thoroughly all portions of the material drawn from the same container. Out of these portions, a small

but approximately equal quantity shall be taken for each selected container and shall be put into a clean and dry receptacle. The content of this receptacle shall be thoroughly mixed. This shall constitute the composite sample. The minimum quantity of material in the composite sample shall be 500 ml.

8.3 Number of Tests and Criteria for Conformity

8.3.1 All the characteristics given in the standard shall be tested on the composite sample.

8.3.2 The lot shall be declared as conforming the requirements of the specification if all the test results on the composite sample meet the corresponding standard requirements.

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